LEWS NEWS

A LEWS swims near a dock on Kelleys Island. Photo: Bridget Stefan, ODNR.

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Protecting Lake Erie's Natural Heritage

RESEARCH ON MOVEMENT PATTERNS AND HIBERNATION SITES OF LAKE ERIE WATER SNAKES CONTINUES

Research on the movement patterns and hibernation sites of Lake Erie water snakes using radiotelemetry, initiated in July 2000, has continued during 2001. This research involves the use of miniature radio transmitters that are surgically implanted into the body cavity of adult water snakes. The signal produced by these transmitters can be detected using a specialized receiver, antenna, and headphones, allowing snakes to be located on a regular basis.

Transmitters were implanted in 20 Lake Erie water snakes on Kelleys Island last year. The movements of 16 of these snakes were monitored until they entered hibernation in October. Movements of 11 of these snakes continue to be monitored this year (three snakes died over the winter and two more died shortly after emergence from hibernation). Several of these snakes moved long distances along the shore or inland to hibernation sites last fall. Interestingly, in the spring of 2001 they returned to the same area of shoreline that they inhabited last year.

In June 2001, transmitters were implanted in 36 additional adult water snakes. This brings the total number of telemetered snakes on Kelleys Island to 19 and adds 2 telemetered snakes on Gibraltar Island, 11 on South Bass Island, 10 on Middle Bass Island, and 5 on North Bass Island – a total of 47 snakes. Movement patterns of these snakes will be monitored until snakes enter into hibernation (mid-October 2001). Hibernation sites will be confirmed at least once between November 2001 and March 2002. Emergence from hibernation will be monitored in March, April, and May, 2002. It is anticipated that the batteries in most transmitters will fail during the summer of 2002. However, some transmitters should continue to operate until summer 2003 and these snakes may be monitored for an additional year.

Locations of telemetered Lake Erie water snakes as of the end of June, 2001 are shown in the accompanying aerial photographs (see Telemetered LEWS Maps, pg. 4). Squares represent males and circles represent females. On Kelleys Island, symbols with dots represent the 11 snakes in which transmitters were implanted in July 2000. Open symbols on all islands represent snakes in which transmitters were implanted in June 2001.

-Dr. Richard King, Department of Biological Sciences, Northern Illinois University

Tracking the

Photo: Angela Boyer, USFWS

Jennifer Cline from MIT participates in catching snakes on Kelleys Island. Last year, 20 LEWS on Kelleys Island were radio-tracked to learn where the snakes move on a daily basis, and to locate winter hibernation sites. This year and next year the study will also follow the movement patterns of snakes on South Bass, Middle Bass, and North Bass Islands.

Dr. Richard King, the study's principle investigator from Northern Illinois University, measures and sexes a snake, and implants a PIT tag by injecting it just under the snake's skin. A PIT tag is a rice-sized microchip with a unique electromagnetic code. When a hand-held scanner is waved over a PIT-tagged snake, the scanner displays the code, which the researcher can then use to identify when and where the snake was previously caught.

Photo: Angela Boyer, USFWS

Photo: Toyna Bittner

A few selected snakes are surgically implanted with radio transmitters. These transmitters give off a radio frequency that can be picked up with a receiver from up to a mile away. The transmitter is about the size of a firecracker with a long antenna, and is placed just under the ribs in the snake's abdomen. The antenna lies flat inside the snake's body, just under the skin.

Snake Study

Kristin Stanford, a graduate student at Northern Illinois University and the primary researcher in this LEWS study, releases snakes that have been implanted with a radio transmitter. After the 40-minute surgery, the snakes are kept for observation for several days. After a final check to ensure that the snakes are recovering well, they are put in a pillow case and taken to the location where they were caught. The snakes are then released and return to their normal activities.

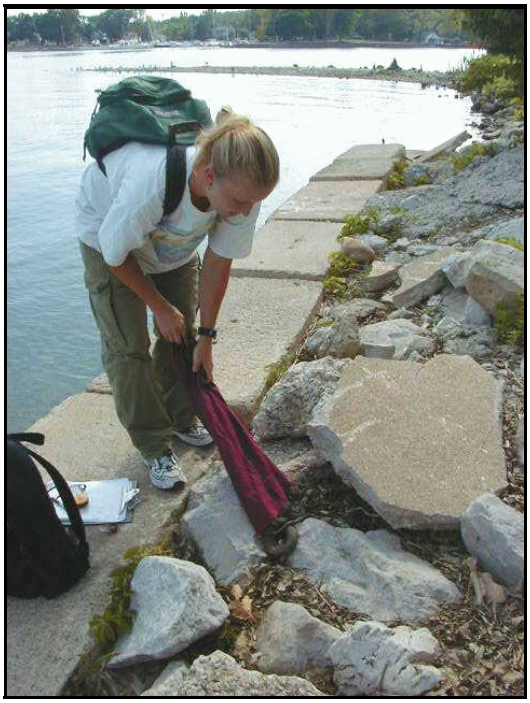

Photo: Rosanne W. Fortner, Ohio State University, Stone Laboratory

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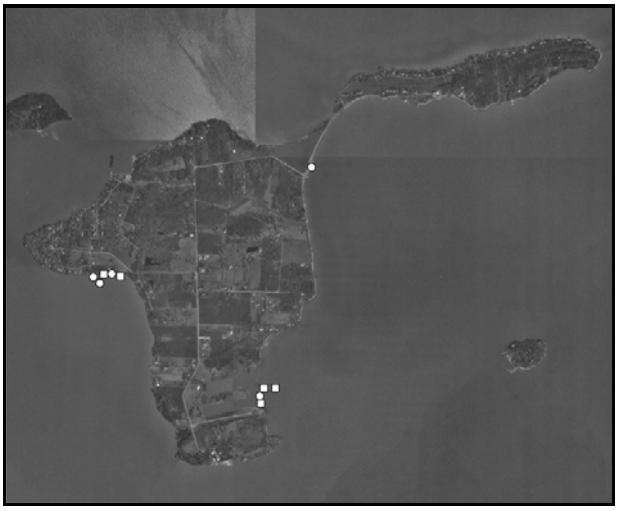
Kristin uses a radio telemetry receiver to pick up signals given off by the transmitters in the snakes. These signals are so powerful that snakes can be located even if they are swimming in the water, hiding under rocks, or hibernating underground.

By tracking the snakes with transmitters, scientists can locate hibernation sites, such as this one. We can learn when snakes enter hibernation and when they emerge. Better understanding the snake's behavior allows us to plan projects and time construction so that snakes and their habitat are protected.

Photo: Buddy Fazio, USFWS

Telemetered LEWS Maps, (cont. from pg. 1)

Kelleys Island



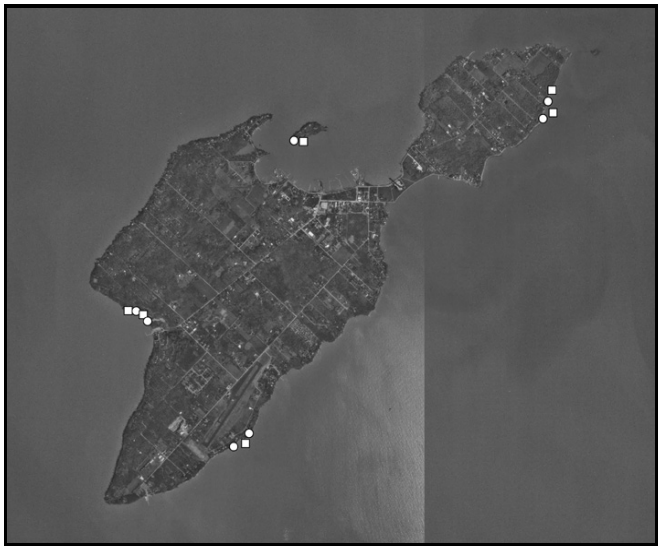
Middle Bass Island

North Bass Island

SNAKE CHECK-UP

Most of us are familiar with the LEWS's basic summer activities. Generally, these include basking in the sun and going for the occasional swim to catch some fish for dinner. Because snakes are reptiles and cannot regulate their own body temperature, they must bask to obtain heat. Without the sun's heat, the snakes are not able to move quickly or digest food.

You may have noticed that some of your local LEWS are getting bigger–much bigger. As fall approaches, pregnant female snakes become heavy with baby snakes. On average, each female will give birth to 23 live babies in late August or September. You may see some of these pencil-size young near the shore in early fall. Many of the young will become food for birds, raccoons, and fish. Many more will fall victim to passing cars as they cross roads to reach food sources or hibernation sites. The young do not grow much before entering hibernation in mid-autumn, and their small size makes them even more susceptible to the cold winter temperatures than the adults. In reality, few baby snakes will live until next spring, and even fewer will make it to adulthood. As natural forces and human forces take their toll on the snake population, it is evident how easily the population could be significantly reduced.



South Bass Island

A Note from the "Snake Lady"….

Hello All!

As you may already know, the 2001 field season of radio-tracking LEWS is under way. I just wanted to let all of the property owners know that myself or my field assistants may be spotted tracking in your backyard! We hope that our presence is only a minor intrusion and ask that we be allowed to find out where our snakes are. We hope that residents will feel free to come out and talk to us when they see us out and about, and that we get to hear all of your LEWS stories. Hope to see you all soon.

Kristin

LEWS NEWS ONLINE!

Even Lake Erie water snakes are keeping up with technology! Current and back issues of LEWS News are now available on the internet! These issues (with full color pictures!) can be read and downloaded from the Fish and Wildlife Service's Reynoldsburg, Ohio Field Office webpage, located at:
http://midwest.fws.gov/Reynoldsburg/

LEWS online is available in "pdf" format, which utilizes the free Adobe Acrobat viewer. The latest version of Adobe Acrobat can be downloaded for free at:
http://www.adobe.com/products/acrobat/readstep2.html

Check us out online and let us know what you think! Email questions or comments to Megan_Sullivan@fws.gov.

KEEP US INFORMED!

If you are receiving LEWS News in your post office box and would like to have it sent to a different address, please let us know! If you know someone who would enjoy reading LEWS News and is not currently receiving it, please contact us!

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A newborn LEWS, or neonate, is about the size of a pencil.
Photo: Angela Boyer, USFWS

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